CLAIMS

1.- A device for moving a bar for controlling the reactivity in the core of a pressurized water nuclear reactor inside a vessel enclosing the reactor core closed off by a vessel head (10), comprising a control rod (6) furnished with means (6a) of attaching the control bar at one axial end, electromechanical means (5a, 5b, 5c; 7a, 7b) for moving the control rod (6) in an axial direction and a sealed containment attached to the vessel head (10) in a penetration opening (9a, 9b) comprising an adapter tube (12) welded into the opening (9a, 9b) of the vessel head (10) and a tubular mechanism housing (13) connected to the adapter (12) on which are mounted the electromechanical means (5a, 5b, 5c; 7a, 7b) for moving the control rod (6) and a tubular sheath (14) allowing the control rod to be axially moved between two extreme positions, closed at a first end and open at a second end, attached in the axial outward extension of the housing (13), by its second, open, end, characterized in that the adapter (12) and the mechanism housing (13) are made in a single piece (15), that the housing (13) comprises, at an axial end opposite to the adapter (12), an internal tapping (13c) and a sealing lip (13d) in the shape of a portion of a torus surrounding the housing (13) and made in its external surface having a cylindrical free joining surface (13'd) having as its axis the axis of the housing (13), and that the tubular sheath (14) comprises, at its second, open, end, a thread (14a) matching the tapping (13c) of the housing (13) for it to be attached by screwing in a coaxial position into the housing (13) and a sealing lip (14b) in the shape of a portion of a torus of dimensions matching those of the sealing lip (13d) of the housing (13) having a cylindrical free joining end surface (14'b) having as its axis the axis of the sheath, the sealing lip (13c) of the housing (13) and the sealing lip (14b) of the sheath (14) having their free ends facing one another after the sheath (14) has been screwed into the housing (13) and being welded to one another, along an annular weld seam (18) made of filler metal coaxial with the housing (13) and with the sheath (14) of a depth in a direction parallel to the axis of the joint (18) and of a width in a direction perpendicular to the axis of the joint

(18) that are substantially constant along the whole circumference of the weld joint (18).

2.- The device as claimed in claim 1, characterized in that the tubular-shaped adapter (12) and the mechanism housing (13) are butt welded in a coaxial disposition to form an integrated housing (15) attached to the vessel head by means of the adapter tube (12).

3.- The device as claimed in claim 2, characterized in that the adapter tube (12) is made of nickel alloy and the mechanism housing (13) of stainless steel.

4.- The device as claimed in claim 3, characterized in that the tubular sheath (14) is made of stainless steel, and the sealing lip (13c) of the integrated housing (15) and the sealing lip (14b) of the tubular sheath (14) made in a single piece, respectively with the housing (13) and the tubular sheath (14), are made of stainless steel.

5.- A method of mounting a device for moving a bar for controlling the reactivity in the core of a pressurized water nuclear reactor inside a vessel enclosing the reactor core closed off by a vessel head (10), comprising a control rod (6) furnished with means (6a) of attaching the control bar at one axial end, electromechanical means (5a, 5b, 5c; 7a, 7b) for moving the control rod (6) in an axial direction and a sealed containment attached to the vessel head (10) in a penetration opening (9a, 9b) comprising an adapter tube (12) welded into the opening (9a, 9b) of the vessel head (10) and a tubular mechanism housing (13) fixedly attached to the adapter (12) on which are mounted the electromechanical means (5a, 5b, 5c; 7a, 7b) for moving the control rod (6) and a tubular sheath (14) allowing the control rod (6) to be axially moved between two extreme positions, closed at a first end and open at a second end, the housing (13) being fixedly attached to the adapter (12) and placed in its axial extension toward the outside of the vessel and the tubular sheath (14) being attached in the axial outward extension of the housing (13), by its second, open, end, characterized in that the mounting and the attachment by welding in a penetration opening (9a, 9b) of the vessel head (10) of an integrated housing (15) comprising the adapter (12) and the mechanism housing (13) are carried out in a single

piece, that the tubular sheath is screwed by its second threaded end part (14a) into the tapped part (13c) of the end of the integrated housing (15), so as to place cylindrical end connection surfaces facing one another having as their axis a common axis (16) of the integrated housing (15) and of the tubular sheath (14) in the assembled position, of a first sealing lip (13d) fixedly attached to the integrated housing (15) and of a second sealing lip (14b) fixedly attached to the tubular sheath (14), and that a sealed join of the sealing lips (13d, 14b) is achieved by an annular weld joint (18) by automatic orbital welding, with the melting of an annular piece (21) made of filler metal interposed between the end connection surfaces of the sealing lips.

6.- The method as claimed in claim 5, characterized in that, prior to producing the weld joint (18), the automatic welding parameters are determined by calibration operations on samples.

7.- The method as claimed in either one of claims 5 and 6, characterized in that the weld joint (18) is made by an automatic orbital TIG process, that is to say with melting of the piece made of annular filler metal (21) by a tungsten electrode under inert gas.